RESEARCH, DEVELOPMENT & TECHNOLOGY TRANSFER
QUARTERLY PROGRESS REPORT

Wisconsin Department of Transportation
DT1241 02/2011

INSTRUCTIONS:
Research project investigators and/or project managers should complete a quarterly progress report (QPR) for each calendar quarter during which the projects are active.

WisDOT research program category: ☐ Policy research ☒ Wisconsin Highway Research Program ☐ Other ☐ Pooled fund TPF#		Report period year: 2013 ☐ Quarter 1 (Jan 1 – Mar 31) ☐ Quarter 2 (Apr 1 – Jun 30) ☒ Quarter 3 (Jul 1 – Sep 30) ☐ Quarter 4 (Oct 1 – Dec 31)
Project title: Laboratory Study of High Performance Curing Compounds for Concrete Pavement-Phase II		
Project investigator: Steven Cramer	Phone: 608-265-2001	E-mail: cramer@engr.wisc.edu
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WisDOT contact: Barry Paye	Phone:	E-mail:
WisDOT project ID: 0092-11-05	Other project ID:	Project start date: 9/1/2012
Original end date: 9/30/2014	Current end date: 9/30/2014	Number of extensions: 0

Project schedule status:
☐ On schedule ☐ On revised schedule ☐ Ahead of schedule ☒ Behind schedule

Project budget status:

Total Project Budget	Expenditures Current Quarter	Total Expenditures	% Funds Expended	% Work Completed
150004	7410	43388	29	47

Project description:

The primary objective of this study is to determine the effect that the presence of bleed water on the surface of concrete has on the effectiveness of curing compounds with regards to freeze-thaw surface durability and to provide recommendations on when curing compounds should be applied. A secondary objective of this study is to determine the repeatability in assessing curing compound performance and to identify the trade-offs in curing compound performance with regards to surface durability.

Progress this quarter (includes meetings, work plan status, contract status, significant progress, etc.):

The manufacturing of ASTM C672 specimens, along with compressive strength cylinders has started, and is approximately 30% complete. This includes the time-dependent applications of the curing compounds used in this project. These specimens have been sealed with epoxy, have had dams attached to the testing surface for holding deicing water, and are currently sitting in an room with a humidity conforming to the curing period requirements for ASTM C672. Specimen production continues approximately two to three times per week. 28-day compressive strength cylinder testing has commenced for mixes of that age. In addition to the C672 specimens and the compressive strength cylinders, an additional beam is manufactured along with every mix to be used in the thermohygrometer mounting apparatus testing device. This device collects data related to the immediate state of surface curing for the specimens that are being treated with curing compounds. The freeze-thaw capability of the Biotron room has been retrofitted on a temporary basis and has been determined to be acceptable for the C672 testing procedure. Materials required for both the storage of specimens and sample collection have been purchased and moved to the Biotron room where they await the arrival of the first samples.

The research team meets once per week or two weeks. Email communications occur between meetings.

Anticipated work next quarter:

C672 specimens, compressive strength cylinders, and thermohygrometer testing beams will continue to be manufactured. C672 specimens will be coated with the appropriate curing compounds, cured, and transported to the Biotron facility when they are ready. Compressive strength cylinders will continue to be tested at the appropriate age. Freeze-thaw testing of the first C672 specimens that have been manufactured will commence early in this upcoming quarter, and will continue throughout until they are finally complete. Any specimens or mixes that have been deemed by the research team to be remade will be done in an appropriate fashion. Data collection and preliminary analysis from the C672 procedure, compressive strength results, and thermohygrometer apparatus will commence.

Circumstances affecting project or budget:

The UW-Madison Biotron is a building that provides a range of environmental conditions in separate rooms. We have been under contract to commence on July 1 using one of the rooms for the ASTM C672 scaling testing. Unfortunately, this facility is being remodeled is far behind schedule. This delayed our mixing until we could be certain we had an operational and reliable freeze-thaw facility. Specimen mixing and manufacturing was delayed in this quarter until Mid-August. This was due to our desire to have a confirmation of commitment from the Biotron that while that facility undergoes renovation that our freeze thaw room would remain operational for the duration of the project's testing phase. Currently the room is operational, and there are contingency plans in the event of a partial shutdown. This delay will almost inevitably result in a need to extend the project end date.

Attach / insert Gantt chart and other project documentation

See attached

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Staff receiving QPR: K. Dinkins	Date received: 09/30/2013
Staff approving QPR:	Date approved: